

## **REMARKS**

Claims 1-35 are pending in the present application. Claims 1-35 have were rejected. No claims have been cancelled, amended, or added. Applicant believes that the present application is in condition for allowance, and respectfully requests reconsideration of the rejection in light of the remarks set forth below.

### **I. REJECTION UNDER 35 U.S.C. §102**

The Office Action rejected claim 1, 3, 5-7, 9-14, 16, 18, 19, 21-30 and 32-34 were rejected under 35 U.S.C. §102(e) as being allegedly anticipated by U.S. Patent No. 7,151,944 issued to Hashem. The rejection is respectfully traversed in its entirety.

Hashem discloses a wireless communication scheme in which a base station can optimize reception of multi-path signal components from a terminal. In situations where transmissions from a terminal to a base station may arrive over multiple paths, Hashem teaches that the base station locks or aligns with the strongest signal component received from the terminal. For this purpose, the base station may detect the strongest signal component (from a plurality of received signal components) for a terminal, and notify the terminal to adjust the transmission time to best align the strongest signal component received at the base station. (Col. 8, lines 10-36).

Additionally, the base station may also be configured to compensate for time alignment drift in the (selected) strongest signal component. (Col. 10, lines 18-23) The base station tracks the speed and location of a moving terminal by a location service (i.e., GPS) and sends control signals to the terminal to cause it to advance or retard its transmission timing, thereby adjusting for timing drifts of the strongest signal component received at the base station.

To anticipate a claim under 35 U.S.C. § 102(e), the reference must teach every element of the claim and “[t]he identical invention must be shown in as complete detail as is contained in the ... claim.” (see MPEP §2131).

*Claims 1, 3, 16, 29 and 30*

As to independent *Claims 1, 3, 16, 29, and 30*, the Office Action states that Hashem teaches every claimed element. Applicant respectfully disagrees with the characterization of Hashem. Upon a detailed review of Hashem and the portions cited in the Office Action, there seems to be nothing in Hashem to even suggest “receiving a first pilot signal at a plurality of terminals”, “deriving at least one transmit timing characteristic from the received first pilot signal, wherein deriving is performed within each of the plurality of terminals”, and “transmitting, at an assigned time, a pilot signal from each of the plurality of terminals in accordance with the derived at least one transmit timing characteristic.” In particular, the communication system described by Hashem does not use two-way pilot signals (from the base station to the terminals and from the terminals to the base station) to adjust transmit timing from the terminals as claimed. Instead, Hashem teaches using *position and speed* information for each terminal to adjust the terminal’s transmission timing (Col. 10, lines 24-44); not pilot signals on the return link (from the terminal to the base station). The Office Action relies on Col. 8, lines 37-41 of Hashem as teaching “transmitting, at an assigned time, a pilot signal from each of the plurality of terminals ....” However, the cited section of Hashem describes “a base station 1 receives a number of signal components displaced in time from a subscriber terminal.” Those “signal components” in Hashem time-shifted versions of the same signal that arrives through different paths. Hashem does not teach using a pilot signal on the return link to adjust timing as claimed. Instead, Hashem is teaching a method for selecting the strongest signal component (from among a plurality of received signal components received over multiple paths) for a

terminal, which is unrelated to the transmission timing adjustment described in Column 10 of Hashem. Consequently, Hashem fails to teach the transmission of two-way pilot signals to and from a terminal to assist in adjusting its transmission timing.

The Office Action also relies on Col. 9, lines 23-26, as teaching “transmitting a second pilot signal from the terminal in the reverse link direction; comparing, at the ground station, the second pilot signal to a reverse link reference signal.” However, the cited section of Col. 9 of Hashem describes a method for selecting the strongest signal component of a multi-path signal from a terminal; it does not describe using two-way pilot signals to adjust transmission timing as claimed.

For at least the foregoing reasons, Applicant respectfully submits that Hashem does not teach every element of the claims and request a withdrawal of the rejection under 35 U.S.C. §102.

As to dependent claims 2, 4-15, 17-28, and 31-35, the Office Action also cites Hashem as teaching the limitations therein. While Applicant disagrees that Hashem teaches the limitations of these dependent claims, Applicant submits that these claims are in condition of allowance due to their dependence on independent claims 1, 3, 16, 29, and 30.

## **II. REJECTION UNDER 35 U.S.C. §103**

### *Claims 2, 8, 20, and 31*

The Office Action rejected claims 2, 8, 20, and 31 under 35 U.S.C. §103 as being unpatentable over U.S. Patent No. 7,151,944 (Hashem) in view of Pub. No. 2005/0243005 (Rafi).

As to claims 2, 8, 20, and 31 the Office Action relies on Rafi as teaching “a reverse uplink receiver beam width of approximately 0.5.degree.” However, Rafi has a filing date of

April 27, 2005 and claims priority on provisional patent application 60/565,515 filed on April 27, 2004. The present application was filed on June 24, 2003 and claims priority on provisional applications 60/391,437 and 60/391,438, both filed June 24, 2002. Therefore, the present application predates Rafi by almost two years. Consequently, Rafi cannot be considered prior art as to claims 2, 8, 20 and 31.

Claims 4 and 17

The Office Action rejected claims 4 and 17 under 35 U.S.C. §103 as being unpatentable over U.S. Patent No. 7,151,944 (Hashem) in view of U.S. Patent No. 5,617,410 (Matsumoto).

The Office Action relies on Matsumoto as teaching “transferring signals through a geosynchronous satellite disposed in said forward link and reverse link” and that it would have been obvious to combine this teaching with those of Hashem to achieve the claimed elements.

Applicant respectfully submits that *prima facie* obviousness has not been established.

The Office has the burden under 35 U.S.C. § 103 to establish a *prima facie* case of obviousness. *In re Piasecki*, 745 F.2d 1468, 1471-72, 223 USPQ 785, 787 (Fed. Cir. 1984). To establish a *prima facie* case of obviousness, three basic criteria must be met. First, the prior art references must teach or suggest all the claim limitations. Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Third, there must be a reasonable expectation of success. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP § 2143 - § 2143.03 for decisions pertinent to each of these criteria.

Claimed Elements are Not Taught or Suggested by the Prior Art

As previously, noted with reference to independent claims 1, 3, 16, 29, and 30, Applicant submits that Hashem fails to teach “receiving a first pilot signal at a plurality of terminals”, “deriving at least one transmit timing characteristic from the received first pilot signal, wherein deriving is performed within each of the plurality of terminals”, and “transmitting, at an assigned time, a pilot signal from each of the plurality of terminals in accordance with the derived at least one transmit timing characteristic.”

Additionally, while the cited portions of Matsumoto (Col. 7, lines 33-36) teaches that a satellite may be used for transmissions between a base station and a terminal, it does not teach the use of a *geosynchronous* satellite as claimed. Matsumoto also fails to teach the transmission of two-way pilot signals between the base station and terminal as claimed. Thus, neither Hashem nor Matsumoto teach these limitations.

No Motivation to Combine Cited References

Assuming, *arguendo*, that every claimed element is taught by the prior art, Applicant further submits that there is no motivation to combine the teaching of Hashem with the teachings of Matsumoto as alleged in the Office Action.

"In determining the propriety of the Patent Office case for obviousness in the first instance, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the reference before him to make the proposed substitution, combination, or other modification." *In re Linter*, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972). The teaching or suggestion to make the claimed combination must be found in the prior art, not in the Applicant's disclosure.

The Office Action states that “it would have been obvious ... to modify the synchronous CDMA system of Hashem to include a communication satellite to propagate signals through as taught by Matsumoto.”

However, there is no motivation to combine the system disclosed by Hashem with the use of a satellite (as taught by Matsumoto) since the synchronous communication system of Hashem appears to expect direct communications between a base station and terminal (not via a satellite). In particular, Hashem is aimed at detecting and aligning with the strongest signal component for a multi-path signal. (Col. 3, lines 20-25). Hashem, teaches that the base station locks or aligns with the strongest signal component received from the terminal over multiple paths. Such system appears to be aimed at direct transmissions between a base station and terminal. Inserting a satellite (with its inherent transmission delays) would appear to be inconsistent with the scheme proposed by Hashem. Additionally, Matsumoto is aimed at accounting for propagation delays in a CDMA communication system, not addressing transmission timing from a terminal. Given that neither Hashem nor Matsumoto teach a system where terminal transmission timing is adjusted by pilot signals via a geosynchronous satellite message, there is no motivation to combine these two references for the claimed purpose.

#### No Reasonable Expectation of Success

Additionally, Hashem and Matsumoto teach very different communication systems. While Hashem focuses on detecting and aligning the strongest signal component (from a plurality of signal components received by a base station over multiple paths), Matsumoto is aimed at identifying propagation delays in communications between a base station and terminals. These two references are aimed at solving different problems in different types of systems. Combining the teachings of these two references does not involve a simple

combination of features but would likely require a wholesale redesign or restructuring of the systems to accomplish such combination. For example, Hashem is clearly intended to operate on signal components received by a base station over multiple paths (but without relays like a satellite) from terminals. It is not evident (or even likely) that the signal detection and alignment schemes disclosed by Hashem would work if a satellite was used between the base station and terminals. Consequently, there is no reasonable expectation of success in combining these two references.

Therefore, Applicant respectfully submits that the Office Action has failed to set forth a prima facie case of obviousness as to claims 4 and 17.

Claims 15 and 35

The Office Action rejected claims 15 and 35 under 35 U.S.C. §103 as being unpatentable over U.S. Patent No. 7,151,944 (Hashem) in view of U.S. Patent No. 6,956,895 (Vihriala).

Applicant respectfully submits that prima facie obviousness has not been established.

Claimed Elements are Not Taught or Suggested by the Prior Art

The Office Action relies on Vihriala as teaching a method of compensating for frequency offset (Col. 3, lines 26-28). However, neither Hashem nor Vihriala teach “the control signal directs the terminal to adjust its transmission frequency” as claimed. Particularly, Vihriala teaches a radio receiver that utilizes a feedback system of “monitoring the phase of the channel estimation output” to generate “a complex phasor on the basis of successive phase values” with which a frequency offset for a baseband signal is compensated. (Col. 3, lines 4-16). Thus, the receiver in Vihriala self-adjusts by extracting information by monitoring the phase of the

channel estimation output. Vihrialala does not receive *control signals* (e.g., from a base station) with which the transmission frequency of the terminal is adjusted.

#### No Motivation to Combine Cited References

Assuming, *arguendo*, that every claimed element is taught by the prior art, Applicant further submits that there is no motivation to combine the teaching of Hashem with the teachings of Vihrialala as alleged in the Office Action. In particular, Hashem discloses methods operational on a base station for detecting and aligning with the strongest signal component for a multi-path signal from a terminal. (Col. 3, lines 20-25). Vihrialala is aimed at reducing the frequency offset on a radio receiver by correcting the phase of a baseband signal based on channel estimation data. There is no teaching in either Hashem or Vihrialala that would suggest combining them to achieve the claimed control signal that directs the terminal to adjust its transmission frequency.

#### No Reasonable Expectation of Success

Additionally, Hashem and Vihrialala teach very different communication systems. While Hashem focuses on detecting and aligning the strongest signal component (from a plurality of signal components received by a base station over multiple paths), Vihrialala is aimed at reducing the frequency offset on a radio receiver. These two references are aimed at solving different problems in different types of systems.

Applicant has reviewed the references made of record and asserts that the pending claims are patentable over the references made of record.

Should any of the above rejections be maintained, Applicant respectfully requests that the noted limitations be identified in the cited references with sufficient specificity to allow Applicant to evaluate the merits of such rejections. In particular, rather than generally citing

whole sections or columns, Applicant requests that the each claimed element be specifically identified in the prior art to permit evaluating the references.

### **CONCLUSION**

In light of the amendments contained herein, Applicant submits that the application is in condition for allowance, for which early action is requested.

Please charge any requisite extension fee to Deposit Account No. 17-0026. Please charge any other fees associated with this paper to deposit Account No. 17-0026.

Respectfully submitted,

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By: /David J. Huffaker/  
David J. Huffaker, Reg. No. 56,771  
Attorney for Applicant  
Telephone: 858-845-2110

QUALCOMM Incorporated  
Attn: Patent Department  
5775 Morehouse Drive  
San Diego, California 92121-1714  
Telephone: (858) 658-5787  
Facsimile: (858) 658-2502